

REMARKS

In the Office Action mailed on December 15, 2003, the Examiner rejected claims 1-14 under 35 U.S.C. §102(a) as being anticipated by U.S. Patent No. 6,268,451 (hereinafter "Faust I") to Faust, et al., PCT publication WO 01/87999A2 (hereinafter "Faust II") to Faust, et al., or European Patent No. 0,255,170 (hereinafter "Licchelli") to Licchelli, et al..

In this response Applicants present various amendments and clarifying remarks believed to remedy the Examiner's rejections and place the claims in condition for allowance.

A. The Rejections Under 35 U.S.C. §102(a)

To anticipate a claim a single reference must disclose each and every limitation or element of the claim. *Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001) That is the reference must show the identical invention as is contained in the claim. *In re Bond*, F.2d 831, 832 (Fed. Cir. 1990). For the following reasons, Applicants submit that the references cited by the Examiner do not anticipate the claims.

1. The Faust I Reference Does Not Anticipate Claims 1-14

Claims 1-14 were rejected under 35 U.S.C. §102(a) as being anticipated by the Faust I patent, i.e. U.S. Patent No. 6,268,451. The Faust I patent is directed to a method for preparing a moisture-curable, pseudo-telechelic, silyl-functional polyisobutylene terpolymer. According to the method, the terpolymer is prepared by reacting an isobutylene monomer, an isopropenylphenyl comonomer, and a vinylphenyl comonomer in the presence of a Lewis acid and a solvent. In the molecular structure of the vinylphenyl comonomer, a silane group is connected to the benzene ring of the vinylphenyl group via a linker group. As the Faust I patent discloses, the linker is a divalent non-aromatic hydrocarbon group having 2 to 6 carbon atoms, *see, e.g.*, col. 3, lines 5-7, such as -CH₂CH₂-, -CH(Me)-, -CH₂CH₂CH₂-, -CH₂-C(Me)₂- and -CH₂=CH₂-, and -CH₂CH(Me)-, *see*, col. 5, lines 4-7 and col. 3, lines 11-15 of paragraph 5.

Claim 1 and Claim 9 have been amended such that the linker group is a methylene group, divalent hydrocarbon group having more than 6 carbon atoms, or divalent hydrocarbon group comprising one or more ether functional groups provided that any ether oxygen and the silicon are connected via at least one carbon atom. The Faust I reference fails to disclose anyone of the linker structures of Claim 1 or Claim 9. Thus, the Faust I patent does not disclose each and every element of Claim 1 and Claim 9. Consequently, Applicant submit that Claim 1 and claims 2-8, which are dependent from claim 1, and Claim 9 and claims 10-14, which are dependent from Claim 9, are not anticipated by the Faust I patent.

2. The Faust II Reference Does Not Anticipate Claims 1-14

Claims 1-14 were rejected under 35 U.S.C. §102(a) as being anticipated by the Faust II reference, i.e. PCT publication WO 01/87999A2. The PCT application relates to a method for preparing a moisture-curable, virtually telechelic, silyl-functional polyisobutylene. In accordance with the method, the polymer is prepared by reacting isobutylene monomer and a styryl comonomer in the presence of a Lewis acid. In the molecular structure of the styryl comonomer, a silane group is connected to the benzene ring of the styryl group via a linker group. As the Faust II reference discloses, the linker is a divalent non-aromatic hydrocarbon group having 2 to 6 carbon atoms, *see, e.g.*, pp. 3, lines 8-11.

The Faust II reference fails to anticipate claims 1-14. Specifically, the Faust reference II fails to disclose every element set forth in the pending claims. Claim 1 and Claim 9 have been amended such that the linker group is a methylene group, divalent hydrocarbon group having more than 6 carbon atoms, or divalent hydrocarbon group comprising one or more ether functional groups provided that any ether oxygen and the silicon are connected via at least one carbon atom. The Faust II reference fails to disclose anyone of the linker structures described in Claim 1 or Claim 9. Thus, the Faust II reference does not disclose each and every element of Claim 1 and Claim 9. Consequently, Applicant submit that Claim 1 and claims 2-8, which are

dependent from claim 1, and Claim 9 and claims 10-14, which are dependent from Claim 9, are not anticipated by the Faust II reference.

3. The Licchelli Reference Does Not Anticipate Claims 1-14

Claims 1-14 were rejected under 35 U.S.C. § 102(a) as being anticipated by the Licchelli patent, i.e. European Patent No. 0,255,170. The European Patent has described copolymerization of isobutene with a silylated unsaturated comonomer. The silylated comonomer is also a silane group substituted vinylbenzene or isopropenylbenzene, in which the silane group is connected to the benzene ring of the vinylbenzene and the isopropenylbenzene via a linker group. As the Licchelli patent teaches, the linker is $-\text{CH}_2\text{CH}_2-$ or $-\text{CH}_2\text{CH}(\text{Me})-$, *see, e.g.*, pp. 3, lines 5-10.

The Licchelli patent also fails to anticipate claims 1-14. Specifically, the Faust reference II fails to disclose every element set forth in the pending claims. Claim 1 and Claim 9 have been amended such that the linker group is a methylene group, divalent hydrocarbon group having more than 6 carbon atoms, or divalent hydrocarbon group comprising one or more ether functional groups provided that any ether oxygen and the silicon are connected via at least one carbon atom. The Licchelli patent completely fails to disclose anyone of the linker structures described in Claim 1 or Claim 9. Thus, the Licchelli patent does not disclose each and every element of Claim 1 and Claim 9. Consequently, Applicant submit that Claim 1 and claims 2-8, which are dependent from claim 1, and Claim 9 and claims 10-14, which are dependent from Claim 9, are not anticipated by the Faust II reference. Applicants respectfully request that claims 1-14 be allowed.

B. Claims 1-14 are patentable Under 35 U.S.C. §103 over the cited references

For a claim to be obvious, the prior art must 1) suggest to a person of ordinary skill in the art that they should make the claimed composition or carry out the claimed process, and 2) reveal to a person of ordinary skill in the art a reasonable expectation of success in making the

composition or carrying out the process. *In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991). Further, to establish *prima facie* obviousness of a claim, all the claim limitations must be taught or suggested by the prior art. M.P.E.P. §2143.03 (8th ed.). For the following reasons Applicants submit that the references cited by the Examiner do not teach or suggest all the limitations of the amended claims and therefore render pending claims 1-14 non-obvious.

1. Claims 1-8 Are Not Obvious in View of the Cited References

The references cited by the Examiner do not render pending claims 1-8 obvious. The Faust I patent teaches a method for preparing a copolymer in which one of the comonomers is vinylphenyl substituted silane. The Faust I linker is specifically a divalent non-aromatic hydrocarbon group having 2 to 6 carbon atoms. In the detailed description of the Faust I patent, the linker is further exemplified as -CH₂CH₂-, -CH(Me)-, -CH₂CH₂CH₂-, -CH₂-C(Me)₂-, -CH₂=CH₂-, and preferably -CH₂CH(Me)-, *see*, col. 3, lines 11-15 of paragraph 5. The Faust II also discloses a method for preparing a copolymer in which one of the comonomers is vinylphenyl substituted silane. In the Faust II reference, once again, the linker is taught to be exclusively a divalent non-aromatic hydrocarbon group having 2 to 6 carbon atoms, *see, e.g.*, pp. 3, lines 8-11. Similarly, the Licchelli patent teaches that the linker is nothing but -CH₂CH₂- or -CH₂CH(Me)-, *see, e.g.*, pp. 3, lines 5-10. In summary, all these references hold that the linker is limited to be a divalent non-aromatic hydrocarbon group having 2 to 6 carbon atoms. In other words, the methods that the references have taught inherently employ the specific linkers, divalent non-aromatic hydrocarbon group having 2 to 6 carbon atoms. In the present application, as amended, the method of Claim 1 and the claims dependent therefrom utilizes a completely different linker. When the linker includes no ether group, it has 0, 1 or more than 6 carbon atoms. Alternatively, the linker can be a divalent hydrocarbon group comprising one or more ether functional groups provided that any ether oxygen and the silicon are connected via at least one

carbon atom. There is no teaching or suggestion in the references that the linkers disclosed therein have the structure recited by claims 1-8.

Additionally, a person skilled in the art would not rely on the references cited by the Examiner to arrive at the claimed methods. Specifically, none of the references cited by the Examiner would teach a skilled artisan polymerization methods of vinylphenyl substituted silane in which the linker between the vinylphenyl and silane is other than a divalent non-aromatic hydrocarbon group having 2 to 6 carbon atoms. There would therefore be no motivation for a person skilled in the art to arrive at the claimed methods.

Consequently, because the cited references do not teach or suggest all the elements of claims 1-8 and there is no motivation for a person skilled in the art to combine the cited references, or with any other reference, claims 1-8 are not obvious in view of the cited references. Applicants respectfully request that claims 1-8 be allowed.

2. Pending Claims 9-14 Are Not Obvious in View of the Cited References

The references cited by the Examiner also do not render pending claims 9-14, which are directed to a method for forming a building sealant, obvious. As amended, the method comprises initiating the same polymerization reaction of Claim 1 with the same comonomer. By the same token, because the cited references do not teach or suggest all the elements of claims 9-14 and there is no motivation for a person skilled in the art to combine the cited references, or with any other reference, claims 9-14 are not obvious in view of the cited references. Applicants respectfully request that claims 9-14 also be allowed.

C. New Claim 20

Claim 20 requires a direct bond between the silicon group and the vinyl aromatic. Neither Faust I, II or Licchelli teach or suggest this structure.



CONCLUSION

In view of the foregoing, Applicants respectfully submit that pending claims 1-14 are in condition for allowance.

Respectfully submitted,

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